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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/055,771	01/23/2002	Che-Yu Li	H2022-00002	8735

7590 12/19/2002  
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EXAMINER

PRASAD, CHANDRIKA

ART UNIT	PAPER NUMBER
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2839

DATE MAILED: 12/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/055,771

Applicant(s)

LI ET AL

Examiner

Chandrika Prasad

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 5-7, 11-13, 17 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Mowatt et al.

Mowatt (Figures 4-7) shows a heat spreading connector having a housing comprising of a laminated structure having a plurality of thermally conductive layers 12, 18, 20 and a plurality of dielectric layers 10, 16 supported by a plurality of substrates (printed circuit boards) 126, 138, 150 wherein the contacts 44, 48, 52 are formed as liners in through holes in the laminated structure and in thermal communication with the thermally conductive layers, and ends of the contacts project outside. The conductive layers have a thickness varying from 0.0007 to 0.0014 inches, which includes values between 0.001 to 0.005 inches. The conductive layers are in thermal communication

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with a heat sink 156, a land grid array mounted electronic device 56 as well as a pin grid array mounted electronic device 152.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mowatt et al.

Mowatt shows all the features of this claim as described in Paragraph 3 above except the material to the dielectric layer to be thermally conductive insulating. The use of thermally conductive insulating material is well known in the art of electrical connectors. It would have been obvious to one having ordinary skill in the art at the time of the instant invention to make the insulating layers thermally conductive because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mowatt et al. in view of Okoshi et al.

Mowatt shows all the features of this claim as described in Paragraph 3 above except the thickness of the dielectric layer to be about 0.003 to 0.007 inches. The instant invention does not provide any reasons or specific problem to be solved by

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making these layers 0.003 to 0.007 inches thick. Okoshi shows the thickness of the dielectric layer to vary from 0.005 mm (0.0002 inches) to 3 mm (0.12 inches), which includes values between 0.003 inches and 0.007 inches. It would have been obvious to one having ordinary skill in the art at the time of the instant invention to make the dielectric layers of a specific thickness as shown by Okoshi because selecting a specific size involves only routine skill in the art.

7. Claims 8-10, 14-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mowatt et al. in view of Okoshi et al.

Mowatt shows all the features of these claims as described in Paragraph 3 above except the wings projecting outward from the housing and bonded to the conductive layer. Okoshi shows the thermally conductive layers with wings 24, 32 and 32 projecting from outer edges of the layers and thus thermally bonded to the wings. It would have been obvious to one having ordinary skill in the art at the time of the instant invention to provide wings on the Mowatt's conductive layers as shown by Okoshi because this would increase the surface area of the conductive layers resulting in an increase in heat dissipating capacity.

8. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mowatt et al. in view of Okoshi et al.

Mowatt shows all the features of these claims as described in Paragraph 3 above except the conductive layers to form ground and power planes. Such a feature is well known in the art of electrical connectors. Okoshi shows the thermally conductive layers 12 and 14 to form power and ground planes. It would have been obvious to one having

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ordinary skill in the art at the time of the instant invention to use the Mowatt's conductive layers as power and ground planes because this would provide a means for supplying electric power to the various components.

***Conclusion***

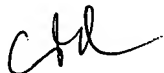
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Thompson, Huemoeller and Menzies et al. also show a socket structure with a plurality of dielectric and conductive layers with plated through holes and use of heat sink to dissipate heat from electronic deices mounted on the structure.

***Contact Information***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chandrika Prasad whose telephone number is (703) 308-0977.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild, can be reached at (703) 308-2710. The fax number for this Group is (703) 872-9318 (general) and (703) 872-9319 for after-final.

Any inquiry of a general nature or relating to the status of this application or processing should be directed to the Group receptionist whose telephone number is (703) 308-1782.



Chandrika Prasad

December 13, 2002